

200	PHANTOM	235	.Flow control of data transmission through a network
201	CROSSTALK SUPPRESSION	235.1	.Using leaky bucket technique
202	AMPLITUDE COMPRESSION OR EXPANSION	236	...Including signaling between network elements
203	GENERALIZED ORTHOGONAL OR SPECIAL MATHEMATICAL TECHNIQUES	236.1	...Using RM (Resource Management) cells
204	<u>Plural diverse modulation techniques</u>	236.2	...Using OAM (Operation, Administration and Maintenance) cells
205	..Pulse width and pulse position modulation	237	..Congestion based rerouting
206	..Quadrature carriers	238	..Least cost or minimum delay routing
207	..Having a signaling constellation	238.1	...ATM least cost routing
208	<u>Particular set of orthogonal functions</u>	239	..Using antijabber circuit
209	..Walsh functions	240	..In a star coupler
210	<u>Fourier transform</u>	241	DIAGNOSTIC TESTING (OTHER THAN SYNCHRONIZATION)
211	<u>Level multiplex</u>	241.1	.Using OAM (Operation, Administration and Maintenance) cells
212	PULSE WIDTH (PULSE DURATION) MODULATION	242	.Fault detection
213	PULSE POSITION MODULATION	243	..Of a repeater system
214	SIMULTANEOUS TELEGRAPHY AND TELEPHONY	244	..Of a switching system
215	PHASE MODULATION	245	..Of a local area network
216	FAULT RECOVERY	246	.Of a repeater
217	.Bypass an inoperative switch or inoperative element of a switching system	247	..Having a dedicated test line or channel
218	..Packet switching system or element	248	.Path check ,
219	..Standby switch	249	.Loopback
220	..Standby switch	250	.Of a switching system
221	.Bypass an inoperative station	251	..Having dedicated test line or channel
222	..In a ring or loop network	252	.Determination of communication parameters
223	..Using a secondary ring or loop	253	..Measurement of flow rate of messages having an address header
224	....Loopback of signals on the secondary ring or loop	254	NETWORK CONFIGURATION DETERMINATION
225	.Bypass an inoperative channel	255	.Using a particular learning algorithm or technique
226	..In a repeater system	256	.Spanning tree
227	...Using a spare channel	257	.In a bus system
228	..Spare channel	258	..In a ring system
229	DATA FLOW CONGESTION PREVENTION OR CONTROL	259	SPECIAL SERVICES
230	.Control of data admission to the network	260	.Conferencing
230.1	..Traffic shaping	261	..Technique for setting up a conference call
231	..End-to-end flow control	262	...Operator setup of the conference
232	..Based on data flow rate measurement	263	..Conferee signals combined or distributed via time channels
233	...Measurement of the peak data flow rate		
234	...Measurement of the average data flow rate		

264	...Using plural diverse channel communications with a dedicated signaling channel (i.e., ISDN)	300	.Data assembly or formatting
		301	.Transmitting time of transition and logic state
265	...Particular technique for combining diverse information types	302	.Channels separated in frequency
		303	.Rotary distributor
266	...Using summation of conferee signals	304	..Synchronizer
		305	...Start-Stop
267	....Digital summation	306	....Nonmechanical
268	.....Including cancellation of certain signals	307	TRASMULTIPLEXERS
269	....Including cancellation of certain signals	308	RESONANT TRANSFER TECHNIQUES
270	Distribution of signal to multiple agent stations	309	RESONANT TRANSFER SUBSTITUTES
271	Special feature of multiplex telephone terminal	310	COMMUNICATION OVER FREE SPACE
272	SEXTUPLEX	310.1	.Using ATM as a wireless protocol
273	QUADRUPLEX	310.2	..Having a plurality of contiguous regions served by respective fixed stations
274	.Repeater	311	.Signaling for performing battery saving
275	.Duplex diplex	312	.Message addressed to multiple destinations
276	DUPLEX	313	.Portable address responsive receiver
277	Communication over free space	314	..Using time division multiplexing
278	..Transmit/receive interaction control	315	Repeater
279	..Duplex repeaters	316	..Airborne or space satellite repeater
280	..Time division	317	...Including noise compensation
281	..Frequency division	318	....Including power control
282	..Transmit/receive interaction control	319	...Multiple access (e.g., FDMA)
283	..Artificial line	320	....Code division (CDMA)
284	..Differential	321	....Time division (TDMA)
285	..Bridge	322	.....Channel reservation scheme
286	..Echo suppression or cancellation	323	.....Including onboard switching
287	...Disabling or inhibiting	324	....Synchronization
288	...Using an attenuator	325	....Including onboard switching
289	...Having residual echo cancellation or suppression	326	...Combining or distributing information via time channels
290	...Using a particular adaptive filter	327	..In a trunking system
291	....Using a transversal filter	328	Having a plurality of contiguous regions served by respective fixed stations
292	...Using a training sequence	329	..Channel assignment
293	.Duplex repeaters or extenders	330	...Having both time and frequency assignment
294	.Time division	331	...Hand-off control
295	.Frequency division	332	....Based upon a particular signal quality measurement
296	.Convertible to half duplex	333	....Signal quality determined by bit error rate
297	DPLEX	334	....Using multiple antennas at a station
298	LOW SPEED ASYNCHRONOUS DATA SYSTEM (E.G., TELETYPEWRITER SERVICE)		
299	.Data switching exchange		

335	...Combining or distributing information via code word channels using multiple access techniques (e.g., CDMA)	364	....Having plural buses
336	...Combining or distributing information via time channels	365	.....Separate transmit and receive buses
337	....Multiple access (e.g., TDMA)	366	....Including serial-parallel or parallel-serial conversion for input or output
338	..Contiguous regions interconnected by a local area network	367	....For distribution to a multiplanar switching network
339	.Plural usage of common antenna	368	....Having details of control storage arrangement
340	.Using trunking	369	....Having time and space switches
341	..Channel assignment	370	....Having space switch as intermediate stage (e.g., T-S-T, T-S-S, or S-S-T)
342	.Combining or distributing information via code word channels using multiple access techniques (e.g., CDMA)	371	....Having details of control storage arrangement
343	.Combining or distributing information via frequency channels	372	....Having time switch as intermediate stage (e.g., S-T-S or T-T-S)
344	..Multiple access (e.g., FDMA)	373	....Having supervisory signaling
345	.Combining or distributing information via time channels	374	....Having details of control storage arrangement
346	..Polling	375	...Time switch, per se (e.g., T or T-T)
347	..Multiple access (e.g., TDMA)	376	....Time slot interchange, per se
348	...Channel reservation scheme	377	....Having supervisory signaling
349	..Using messages having an address field as header	378	....Having details of control storage arrangement
350	..Synchronization	379	....Data memory addressing
351	PATHFINDING OR ROUTING	380	...Space switch, per se (e.g., S or S-S)
352	<u>Combined circuit switching and packet switching</u>	381	...Having details of control storage arrangement
353	..Switching network having common elements to handle both circuit switched traffic and packet switched traffic	382	....Data memory addressing
354	..Switching network having separate elements to handle circuit switched traffic and packet switched traffic	383	....Control storage addressing
355	..Routing packets through a circuit switching network	384	...Having a supervisory signaling feature
356	..Routing circuit switched traffic through a packet switching network	385	....Having a separate signaling network
357	<u>Through a circuit switch</u>	386	..Particular switching network arrangement
358	..Switching input signals having different aggregate bit rates	387	...Multiplanar switch
359	..Input or output circuit, per se (i.e., line interface)	388	...Multistage switch
360	..Switching control	389	<u>Switching a message which includes an address header</u>
361	...Folded network	390	..Replicate messages for multiple destination distribution
362	...Bus switch	391	..Switching input signals having different aggregate bit rates
363	....Having details of control storage arrangement	392	..Processing of address header for routing, per se
		393	...Address concatenation
		394	..Sequencing or resequencing of packets to insure proper output sequence order

(395.1) Message transmitted using fixed length packets (e.g., ATM cells)

396 ...Distributed switching

397Employing logical addressing for routing (e.g., VP or VC)

398 ...Centralized switching

399Employing logical addressing for routing (e.g., VP or VC)

395.2 ...Connection set-up/disconnect (e.g., Connection Admission Control)

395.21Based on traffic contract (including using setup messages, QoS, delay/bandwidth requirement)

395.3 ...Connection identifier assignment

395.31Including routing table

395.32Employing particular searching function (e.g., hashing, alternate, re-routing)

395.4 ...Assigning period of time for information to be transmitted (e.g., scheduling)

395.41Based on bandwidth allocation (e.g., Weighted Round Robin)

395.42Based on priority

395.43Based on service category (e.g., CBR, VBR, UBR, or ABR)

395.5 ...Multiprotocol network

395.51Utilizing a plurality of ATM networks

395.52Internet Protocol (including TCP/IP or UDP/IP) over fixed length packet network (e.g., IP over ATM)

395.53Emulated LAN (LANE/ELAN/VLAN, e.g., Ethernet or token ring legacy LAN over a single ATM network/LAN)

395.54Address resolution (e.g., ARP, or NHRP)

395.6 ...Adapting detail (e.g., converting to/from ATM, or detail of ATM Adaption Layers (AALs))

395.61Adapting constant bit rate (CBR) data (e.g., voice, or narrow band ISDN over ATM, or using AAL1)

395.62Detail of clock recovery or synchronization

395.63Adapting frame relay/X.25 data (e.g., using AAL 3/4)

395.64Adapting connection-oriented variable bit rate (VBR) data (e.g., MPEG/HDTV packet video/audio over ATM or using AAL2)

395.65Adapting connectionless variable bit rate (VBR) data (e.g., adapting 802.X, or using AAL5)

395.7 ...Having detail of switch memory reading/writing

395.71Having input or output storage or both

395.72Having central (e.g., common) storage

~~400~~ ...Having a plurality of nodes performing distributed switching

401 ...Bridge or gateway between networks

402Bridge between bus systems

403At least one bus is a ring network

404Ring or loop forms backbone for interconnecting other networks

405The other networks are ring or loop networks

406 ...Plurality of rings or loops to form a mesh network

407 ...Interconnected star couplers

408 ...Nodes interconnected in hierarchy to form a tree

409 ...Employing logical addressing for routing (e.g., VP or VC)

410 ...Having a signaling feature

~~411~~ ...Including sorting and merging networks

~~412~~ ...Queuing arrangement

413 ...Having both input and output queuing

414Contention resolution for output

415 ...Having input queuing only

416Contention resolution for output

417 ...Having output queuing only

418Contention resolution for output

419 ...Input or output circuit, per se (i.e., line interface)

420 ...For connecting plural subscribers to a network (i.e., network termination)

421	...Subscribers connected to input or output circuit by a common bus	452	...On ring or loop
422	<u>Centralized switching</u>	453	....Initialization or reinitialization of network
423	...including a bus for interconnecting inputs and outputs	454	....Having multiple idle or busy signals simultaneously on the network
424	...Including a ring or loop for interconnecting inputs and outputs	455	.....Including priority resolution
425	...Star configuration	456	.....Idle or busy signal erasure or frame erasure
426	...Having a signaling feature	457	...Initialization or reinitialization of network
427	..Space switching	458	.Using time slots
428	<u>Store and forward</u>	459	..Having indication of idle or busy state of time slot
429	..Particular storing and queuing arrangement	460	...On ring or loop network
430	.FDM switching	461	..Arbitration for access between contending stations
431	CHANNEL ASSIGNMENT TECHNIQUES	462	.Arbitration for access to a channel
432	.Messages addressed to multiple destinations	463	.Details of circuit or interface for connecting user to the network
433	.Only active channels transmitted	464	COMMUNICATION TECHNIQUES FOR INFORMATION CARRIED IN PLURAL CHANNELS
434	..Concentrator	465	Adaptive
435	...TASI (Time Assignment Speech Interpolation)	466	..Converting between protocols
436	.Combined time and frequency assignment	467	...Conversion between signaling protocols
437	.Adaptive selection of channel assignment technique	468	..Assignment of variable bandwidth or time period for transmission or reception
438	.Using a separate control line or bus for access control	469	..Processing multiple layer protocols
439	..Control line is used to request or reserve access	470	..Frame length
440	...Dual bus dynamic queuing (i.e., DQDB)	471	...Message having an address header
441	.Combining or distributing information via code word channels using multiple access techniques (e.g., CDMA)	472	..Byte length
442	.Combining or distributing information via time channels using multiple access technique (e.g., TDMA)	473	..Transmission of a single message having multiple packets
443	..Using channel reservation	474	<u>Assembly or disassembly of messages having address headers</u>
444	...With priority resolution	475	.Address transmitted
445	.Carrier sense multiple access (CSMA)	476	.Byte assembly and formatting
446	..Using a star coupler	477	.Transmission bandwidth conservation
447	..Arbitration for access between contending stations	478	.Combined time division and frequency division
448	...Using weighted back-off timing	479	.Combining or distributing information via code word channels
449	Polling		
450	..Passing a signal identifying the idle or busy state of a channel (e.g., token passing)		
451	...On bus		

480	Combining or distributing information via frequency channels	515	.....Pseudo-random
481	..Multiple frequency translations	516	....Adjusting for phase or jitter
482	..Particular carrier generation	517	....Including delay device
483	..Using angle modulation	518	....Provide plural phases of a clocking signal
484	..Digital analysis or synthesis of a group	519	....Delay based upon propagation delay time
485	..Subscriber carrier	520	..Unique synchronization pulse
486	...Program distribution	521	..Time compression or expansion
487	....Combined communication of diverse information types	522	..Signaling (ancillary to main information)
488	...Connecting filters	523	...Using bit robbing
489	..Bus (distributed stations)	524	...Using a dedicated signaling channel (i.e., D-channel)
490	...Combined communication of diverse information types	525	..Digital tone signal generation
491	..Pilot	526	..Digital tone detection
492	..Repeater	527	...Superimposed or modulated on principal information
493	..Combined voice and data transmission	528	...Inserted in gaps in main information
494	...Data over voice	529	..Information superimposed on other information
495	...Data under voice	530	..Staircase wave
496	..Signaling	531	..Magnetic core for switching or storage
497	..Using particular filtering technique	532	..Multiplexer or distributor and technique for handling low level input signal
498	Combining or distributing information via time channels	533	..Multiplexer or distributor using pulse amplitude modulation
499	..Polarity multiplex	534	..Multiplexer or distributor using electron beam switching device
500	..Pilot	535	..Multiplexing combined with demultiplexing
501	..Repeater	536	..Demultiplexing single signal into plural parallel channels (e.g., parallel transmission for increasing transmission speed)
502	..Bus extenders	537	..Multiplexing plural input channels to a common output channel
503	..Synchronizing	538	...Plural input channels of different rates to a single common rate output channel
504	...Reference indication consists of a gap	539	...Multiple levels of multiplexing to form a multiplex hierarchy
505	..Pulse stuffing or deletion	540	...Plural input channels of same rate to a single common rate output channel
506	...Frame or bit stream justification		
507	..Mutual (reciprocal) synchronization		
508	...Transmission time into time slots adjusted based upon propagation delay time		
509	..Using synchronization information contained in a frame		
510	....Synchronization information is distributed over multiple frames		
511	....Using redundant synchronization words		
512	....Synchronization information is distributed within a frame		
513	.....Plural synchronization words		
514	....Unique synchronization word or unique bit sequence		

541Multiple levels of multiplexing to form a multiplex hierarchy
 542 ..Demultiplexing single input channel to plural output channels
 543 ..Different rate output channels
 544 ..Same rate output channels
 545 ..Conversion of rate from a single input to a single output
 546 MISCELLANEOUS

Any foreign patents or non-patent literature from subclasses that have been reclassified have been transferred directly to FOR Collection listed below. These collections contain ONLY foreign patents or nonpatent literature. The parenthetical references in the Collection titles refer to the abolished subclasses from which these Collections were derived.

CROSS-REFERENCE ART COLLECTIONS

901 WIDE AREA NETWORK
 902 ..Packet switching
 903 ..OSI Compliant Network
 904 ..Integrated Services Digital Network (ISDN)
 905 ..Asynchronous Transfer Mode (ATM)
 906 ..Fiber Data Distribution Interface (FDDI)
 907 ..Synchronous Optical network (SONET)
 908 LOCAL AREA NETWORK
 909 ..Token ring
 910 ..Carrier sense multiple access (e.g., Ethernet, 10Base-T)
 911 ..Bridge (e.g., brouter, bus extender, etc.)
 912 PACKET COMMUNICATIONS
 913 ..Wireless or radio
 914 RATE CONVERTER
 915 TIME DIVISION CELLULAR RADIO SYSTEMS
 916 MULTIPLEXER/DEMULTIPLEXER

FOREIGN ART COLLECTIONS

FOR 000 CLASS-RELATED FOREIGN DOCUMENTS

FOR 100 SIMULTANEOUS TELEGRAPHY AND TELEPHONY (370/125)
 FOR 101 MULTIPLEX SWITCHING (370/53)
 FOR 102 ..Pathfinding (370/54)
 FOR 103 ..Drop channel (370/55)
 FOR 104 ..Concentrators (370/56)
 FOR 105 ..FDM switching (frequency division multiplexing) (370/57)
 FOR 106 ..TDM switching (time division multiplexing) (370/58.1)
 FOR 107 ..Control processing (370/58.2)
 FOR 108 ..Distributed (370/58.3)
 FOR 109 ..T-S (Time-Space) or S-T (370/59)
 FOR 110 ..Packet or addressed data (370/60)
 FOR 111 ..Combined with circuit-switching (370/60.1)
 FOR 112 ..Store and forward (370/61)
 FOR 113 ..Special services with switching (e.g., conference) (370/62)
 FOR 114 ..TST (Time-Space-Time) (370/63)
 FOR 115 ..STS (Space-Time-Space) (370/64)
 FOR 116 ..Folded network (370/65)
 FOR 117 ..Space stage, per se (370/65.5)
 FOR 118 ..Time only (370/66)
 FOR 119 ..Bus switch (370/67)
 FOR 120 ..Time slot interchangers, per se (370/68)
 FOR 121 ..With signalling feature (370/68.1)
 FOR 122 FREQUENCY DIVISION (370/69.1)
 FOR 123 ..Multiple frequency translations (370/120)
 FOR 124 ..Carrier generation (370/121)
 FOR 125 ..Angle modulation (370/122)
 FOR 126 ..Filtering techniques (370/123)
 FOR 127 ..Digital analysis or synthesis of group (370/70)
 FOR 128 ..Subscriber carrier (370/71)
 FOR 129 ..Connecting filters (370/72)
 FOR 130 ..Program distribution (370/73)

CLASS 370 MULTIPLEX COMMUNICATIONS

- FOR 131 .Bus (distributed stations) (370/124)
- FOR 132 .Pilot (370/74)
- FOR 133 .Repeaters (370/75)
- FOR 134 .Signalling (370/76)
- FOR 135 **TIME DIVISION (370/77)**
- FOR 136 .Polarity multiplex (370/78)
- FOR 137 .Adaptive systems (370/79)
- FOR 138 ..Only active channels transmitted (370/80)
- FOR 139 ...TASI (Time assigned speech interpolation) (370/81)
- FOR 140 ..Frame length (370/82)
- FOR 141 ..Byte length (370/83)
- FOR 142 ..Rate (370/84)
- FOR 143 .Bus transmission (370/85.1)
- FOR 144 ..Contention (370/85.2)
- FOR 145 ...Carrier sense (370/85.3)
- FOR 146 ...Token passing (370/85.4)
- FOR 147Loop or ring (370/85.5)
- FOR 148 ..Priority (370/85.6)
- FOR 149 ..Variable channel assignment (370/85.7)
- FOR 150 ...Polling (370/85.8)
- FOR 151 ..Plural bus (370/85.9)
- FOR 152 ...With separate control bus (370/85.11)
- FOR 153 ...Loop or ring (370/85.12)
- FOR 154 ...Bridge between bus systems (370/85.13)
- FOR 155Interconnection between ring or loop (370/85.14)
- FOR 156 ..Loop or ring (370/85.15)
- FOR 157 .Asynchronous and nonsynchronous (370/91)
- FOR 158 ..Address transmitted (370/92)
- FOR 159 ...Multiple access, discrete address (370/93)
- FOR 160 ...Packet (370/94.1)
- FOR 161Combined with synchronous information (370/94.2)
- FOR 162Star, tree, or mesh networks (370/94.3)
- FOR 163 .Variable channel assignment (370/95.1)
- FOR 164 ..Polling (370/95.2)
- FOR 165 ..Time division multiple access (370/95.3)
- FOR 166 .TDM pulse repeater (370/97)
- FOR 167 .Pilot (370/98)
- FOR 168 .Byte assembly and formatting (370/99)
- FOR 169 .Synchronizing (370/100.1)
- FOR 170 ..Reference indication consists of a gap (370/101)
- FOR 171 ..Pulse stuffing or deletion (370/102)
- FOR 172 ..Mutual (reciprocal) synchronization (370/103)
- FOR 173 ..Moving satellite (370/104.1)
- FOR 174 ..Distributed (370/105)
- FOR 175 ..Frame (370/105.1)
- FOR 176 ..Channel (370/105.2)
- FOR 177 ..Bit phase or jitter (370/105.3)
- FOR 178 ..Unique synchronization word (370/105.4)
- FOR 179 ..Unique synchronization pulse (370/105.5)
- FOR 180 ..Plural synchronizing words (370/106)
- FOR 181 ..Pseudo-random (370/107)
- FOR 182 ..Including delay device (370/108)
- FOR 183 .Time compression or expansion (370/109)
- FOR 184 .Signalling (ancillary to main information) (370/110.1)
- FOR 185 ..Digital tone signal generation (370/110.2)
- FOR 186 ..Digital tone detection (370/110.3)
- FOR 187 ..Superimposed or modulated on principal information (370/110.4)
- FOR 188 ..Inserted in gaps in main information (370/111)
- FOR 189 .Multiplexers/distributors (hierarchy and level) (370/112)
- FOR 190 ..Apparatus and techniques for handling low level input signals (370/113)
- FOR 191 ..Pulse amplitude modulation (370/114)
- FOR 192 ..Electron beam switching device (370/115)
- FOR 193 .Staircase wave (370/116)
- FOR 194 .Magnetic core for switching or storage (370/117)
- FOR 195 **TRANSMISSION BANDWIDTH CONSERVATION (370/118)**
- FOR 196 **MISCELLANEOUS (370/119)**
- PATHFINDING OR ROUTING**
- Switching a message which includes an address header

FOR 197 ..Message transmitted using
regularly occurring fixed
length time intervals (e.g.,
ATM) (370/395)

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CLASS 370 MULTIPLEX COMMUNICATIONS